USER GUIDE

NI PXIe-1075 Power Supply Shuttle

The NI PXIe-1075 power supply shuttle is a replacement part for the NI PXIe-1075 chassis.

Caution This power supply is not compatible with any other National Instruments chassis.

Introduction

To minimize downtime caused by a power-supply failure, the NI PXIe-1075 chassis has a modular power supply shuttle. This power supply shuttle includes the chassis power supply, cooling fans, and fan-control circuitry. Key features of the power supply shuttle include:

- Universal AC input with automatic voltage and frequency ranging
- Over-current protection via push-reset circuit breaker
- Remote power monitoring and inhibit via a rear-panel connector
- Temperature-sensing module that can adjust fan speed based on air-intake temperature to minimize audible noise
- Circuitry to control a front-panel LED that indicates power supply failure

Unpacking

Carefully inspect the shipping container and the power supply shuttle for damage. Check for visible damage to the metal work. Check to make sure all handles, hardware, and switches are undamaged. Visually inspect the inside of the shuttle for any possible damage, debris, or detached components. If damage appears to have been caused during shipment, file a claim with the carrier. Retain the packing material for possible inspection and/or reshipment.

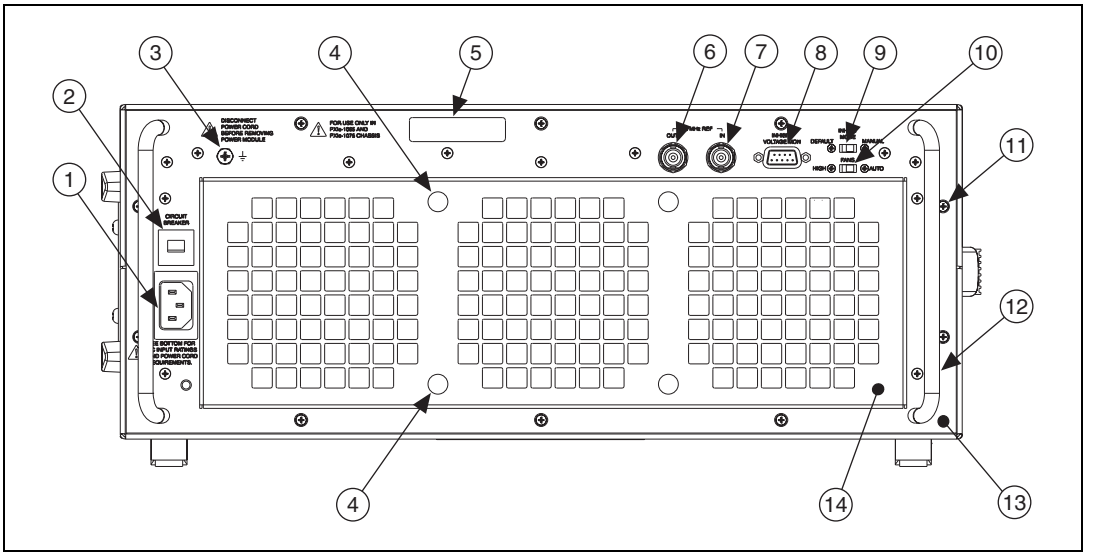
NATIONAL INSTRUMENTS

What You Need to Get Started

- ❑ NI PXIe-1075 chassis (the unit being repaired)
- ❑ NI PXIe-1075 power supply shuttle
- ❑ *Read Me First: Safety and Electromagnetic Compatibility*
- ❑ *NI PXIe-1075 User Manual* (provided with the chassis; also available at `ni.com/support`)
- ❑ #1 Phillips screwdriver

Description

Refer to Figure 1 to locate user-accessible components on the power supply shuttle.



1	Universal AC Input	8	Remote Inhibit and Voltage Monitoring Connector
2	Push-Reset Circuit Breaker	9	Inhibit Mode Selector Switch
3	Chassis Ground Screw	10	Fan Speed Selector Switch
4	Air Filter Retainer Screws	11	Power Supply Shuttle Mounting Screws (10x)
5	Power Supply Shuttle ID Label	12	Power Supply Shuttle Handle (2x)
6	10 MHz REF OUT BNC	13	Power Supply Shuttle
7	10 MHz REF IN BNC	14	Air Filter Retainer

Figure 1. Rear View of the NI PXIe-1075 Chassis

Installation and Maintenance

The information in this section is for qualified service personnel only. Read the *Read Me First: Safety and Electromagnetic Compatibility* document included with your kit before using the power supply shuttle.

Caution Many components within the chassis under repair are susceptible to static discharge damage. Service the chassis only in a static-free environment. Observe standard handling precautions for static-sensitive devices while servicing the chassis. Always wear a grounded wrist strap, or equivalent, while servicing the chassis.

Caution Always disconnect the AC power cable before cleaning or servicing the chassis.

Caution Never connect the AC power cable to the power supply shuttle until you install it in a chassis. Do not use, test, or configure the power supply shuttle outside of a chassis.

The power supply shuttle is a replacement part for the NI PXIe-1075 chassis. The *NI PXIe-1075 User Manual* contains all of the most up-to-date chassis service procedures, including removal and replacement of power supply shuttles. The chassis includes a hardcopy of the user manual; additionally, you can download a softcopy from `ni.com/support`.

Removal

Before attempting to replace the power supply shuttle, verify that there is adequate clearance behind the chassis. With the chassis powered off, disconnect the power cable from the power supply shuttle on the back of the chassis. Identify the ten mounting screws that attach the power supply shuttle to the chassis. Refer to Figure 1 for the mounting screw locations. Using a Phillips screwdriver, remove the mounting screws. Pull on the two rear handles of the power supply shuttle to remove it from the back of the chassis.

Installation

Ensure that there is no visible damage to the new power supply shuttle. Verify that the housing and connector on the new power supply shuttle have no foreign material inside. Remove the protective cap on the PXI_CLK10 connector. Install the new power supply shuttle into the opening on the rear of the chassis. Install and tighten the ten mounting screws with a Phillips screwdriver.

Configuration

The fan-speed selector switch is on the rear panel of the power supply shuttle. Refer to Figure 1 to locate the fan-speed selector. Select HIGH for maximum cooling performance (recommended) or AUTO for quieter operation. When set to AUTO, air-intake temperature determines the fan speed.

Note The power supply shuttle will not power up unless connected to the backplane in a functional NI PXIe-1075 chassis.

Power Cord

For 100–120 VAC installation, use gray power cords rated for 125 V/15 A, using the NI cable part numbers listed in the following table.

Country	NI Part Number
North America	763830-01
Japan	763841-01

Connecting Safety Ground

Caution The power supply shuttle is designed with a three-position NEMA 5-15 (IEC 60320) jack that connects the ground line to the chassis ground. To minimize shock hazard, make sure the electrical power outlet you use to power the chassis has an appropriate earth safety ground.

If your power outlet does not have an appropriate ground connection, you must connect the premise safety ground to the chassis grounding screw. Refer to Figure 1 to locate the chassis grounding screw. To connect the safety ground, complete the following steps:

1. Connect a 16 AWG (1.3 mm) wire to the chassis grounding screw using a grounding lug. The wire must have green insulation with a yellow stripe or must be noninsulated (bare).
2. Attach the opposite end of the wire to permanent earth ground using toothed washers or a toothed lug.

Specifications

AC Input

Input voltage range..... 100 to 120 VAC,
220 to 240 VAC

Operating voltage range[1]..... 90 to 120 VAC,
200 to 264 VAC

Input current rating..... 12 A, 6 A

Input frequency ..... 50/60 Hz

Over-current protection..... 15 A circuit breaker

Line regulation

- 3.3 V..... <±0.2%
- 5 V..... <±0.1%
- ±12 V ..... <±0.1%

Efficiency ..... 70% typical

Power disconnect ..... The AC power cable provides main power disconnect. The front-panel power switch causes the internal chassis power supply to provide DC power to the CompactPCI/PXI Express backplane. You also can use the rear-panel D-SUB 9-pin connector and power mode switch to control the internal chassis power supply. For more information, refer to the *Inhibit Mode Switch* section of Chapter 2, *Installation and Configuration*, in the *NI PXIe-1075 User Manual*.

[1] The operating range is guaranteed by design.

DC Output

DC current capacity (I_{MP})

Voltage	Maximum Current
+3.3 V	61 A
+5 V	56 A
+12 V	62 A
–12 V	4 A
5 V_{AUX}	1.5 A

Notes Maximum total power is 791 W.

The maximum power dissipated in the system slot should not exceed 140 W.

Backplane pin current capacity

Slot	+5 V	V (I/O)	+3.3 V	+12 V	–12 V	5 V_{AUX}
System Controller Slot	9 A	0 A	9 A	11 A	0 A	1 A
System Timing Slot	0 A	0 A	3 A	2 A	0 A	1 A
Hybrid Peripheral Slot with PXI-1 Peripheral	6 A	5 A	6 A	1 A	1 A	0 A
Hybrid Peripheral Slot with PXI-5 (PXI Express) Peripheral	0 A	0 A	3 A	2 A	0 A	1 A
PXI-1 Peripheral Slot	6 A	11 A	6 A	1 A	1 A	0 A

Load regulation

Voltage	Load Regulation
+3.3 V	<5%
+12 V	<5%
+5 V	<5%
–12 V	<5%

Maximum ripple and noise (20 MHz bandwidth)

Voltage	Maximum Ripple and Noise
+3.3 V	50 mV_{pp}
+12 V	120 mV_{pp}
+5 V	50 mV_{pp}
–12 V	120 mV_{pp}

Over-current protection..... All outputs protected from short circuit and overload with automatic recovery

Over-voltage protection
3.3 V and 5 V ..... Clamped at 20 to 30% above nominal output voltage

Power supply shuttle MTTR ..... Replacement in under 5 minutes

Where to Go for Support

The National Instruments Web site is your complete resource for technical support. At `ni.com/support` you have access to everything from troubleshooting and application development self-help resources to email and phone assistance from NI Application Engineers.

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